

**AMERICAN DENTAL ASSOCIATION  
GUIDELINES FOR THE USE OF CONSCIOUS SEDATION, DEEP SEDATION  
AND GENERAL ANESTHESIA FOR DENTISTS\***

**I. Introduction**

A. ADA Policy Statement on Use of Conscious Sedation, Deep Sedation and General Anesthesia in Dentistry

B. Purpose

The purpose of these guidelines is to allow dentists to provide their patients with the benefits of anxiety and pain control in a safe and efficacious manner.

These guidelines are not intended to include the use of nitrous oxide/oxygen when used alone and/or with local anesthesia.

**II. Definitions**

**Methods of Anxiety and Pain Control**

*analgesia* - the diminution or elimination of pain.

*anxiolysis* - the diminution or elimination of anxiety.

*local anesthesia* - the elimination of sensation, especially pain, in one part of the body by the topical application or regional injection of a drug.

*conscious sedation*<sup>1</sup> - a minimally depressed level of consciousness that retains the patient's ability to independently and continuously maintain an airway and respond appropriately to physical stimulation or verbal command and that is produced by a pharmacological or non-pharmacological method or a combination thereof.

In accord with this particular definition, the drugs and/or techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely. Further, patients whose only response is reflex withdrawal from repeated painful stimuli would not be considered to be in a state of conscious sedation.

*combination inhalation-enteral conscious sedation* (combined conscious sedation) - conscious sedation using inhalation and enteral agents.

When the intent is anxiolysis only, and the appropriate dosage of agents is administered, then the definition of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) does not apply.

Nitrous oxide/oxygen when used in combination with sedative agents may produce anxiolysis, conscious or deep sedation or general anesthesia.

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<sup>1</sup> Parenteral conscious sedation may be achieved with the administration of a single agent or by the administration of more than one agent.

*titration* - the administration of small incremental doses of a drug until a desired clinical effect is observed.

In accord with this particular definition, titration of oral medication for the purposes of sedation is unpredictable. Repeated dosing of orally administered sedative agents may result in an alteration of the state of consciousness beyond the intent of the practitioner. Except in unusual circumstances, the maximum recommended dose of an oral medication should not be exceeded.

*deep sedation* - an induced state of depressed consciousness accompanied by partial loss of protective reflexes, including the inability to continually maintain an airway independently and/or to respond purposefully to physical stimulation or verbal command, and is produced by a pharmacological or non-pharmacological method or a combination thereof.

*general anesthesia* - an induced state of unconsciousness accompanied by partial or complete loss of protective reflexes, including the inability to continually maintain an airway independently and respond purposefully to physical stimulation or verbal command, and is produced by a pharmacological or non-pharmacological method or a combination thereof.

### Routes of Administration

*enteral* - any technique of administration in which the agent is absorbed through the gastrointestinal (GI) tract or oral mucosa [i.e., oral, rectal, sublingual].

*parenteral* - a technique of administration in which the drug bypasses the gastrointestinal (GI) tract [i.e., intramuscular (IM), intravenous (IV), intranasal (IN), submucosal (SM), subcutaneous (SC), intraocular (IO)].

*transdermal/transmucosal* - a technique of administration in which the drug is administered by patch or iontophoresis.

*inhalation* - a technique of administration in which a gaseous or volatile agent is introduced into the pulmonary tree and whose primary effect is due to absorption through the pulmonary bed.

### Terms

*must/shall* - indicates an imperative need and/or duty; an essential or indispensable item; mandatory.

*should* - indicates the recommended manner to obtain the standard; highly desirable.

*may* - indicates freedom or liberty to follow a reasonable alternative.

*continual* - repeated regularly and frequently in a steady succession.

*continuous* - prolonged without any interruption at any time.

*time-oriented anesthesia record* - documentation at appropriate intervals of drugs, doses and physiologic data obtained during patient monitoring.

*immediately available* - on site in the facility and available for immediate use.

### Levels of Knowledge

*familiarity* - a simplified knowledge for the purpose of orientation and recognition of general principles.

*in-depth* - a thorough knowledge of concepts and theories for the purpose of critical analysis and the synthesis of more complete understanding (highest level of knowledge).

### Levels of Skill

*exposed* - the level of skill attained by observation of or participation in a particular activity.

*competent* - displaying special skill or knowledge derived from training and experience.

*proficient* - the level of skill attained when a particular activity is accomplished with repeated quality and a more efficient utilization of time (highest level of skill).

### III. Patient Physical Status Classification

*ASA I* - A normal healthy patient. (*ASA* = American Society of Anesthesiologists)

*ASA II* - A patient with mild systemic disease.

*ASA III* - A patient with severe systemic disease.

*ASA IV* - A patient with severe systemic disease that is a constant threat to life.

*ASA V* - A moribund patient who is not expected to survive without the operation.

*ASA VI* - A declared brain-dead patient whose organs are being removed for donor purposes.

*E* - Emergency operation of any variety (used to modify one of the above classifications, i.e., *ASA III-E*)

### IV. Educational Requirements

#### A. Enteral and/or Combination Inhalation-Enteral Conscious Sedation (Combined Conscious Sedation)

1. To administer enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) the dentist must satisfy one of the following criteria:

a. Must have completed training to the level of competency in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) consistent with that prescribed in Part I and Part III of the ADA Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry.

b. Completion of an ADA accredited post-doctoral training program, which affords comprehensive and appropriate training necessary to administer and manage enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).

c. This should not exclude individuals who would be grandfathered by individual state laws.

2. The following guidelines shall apply to the administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) in the dental office.

a. Administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) by another duly qualified dentist or physician requires the operating dentist and his/her clinical staff to maintain current expertise in Basic Life Support (BLS).

b. When a Certified Registered Nurse Anesthetist (CRNA) is permitted to function under the supervision of a dentist, administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) by a CRNA shall require the operating dentist to have completed training in enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) commensurate with these guidelines.

c. A dentist administering enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) must document current successful completion of a Basic Life Support (BLS) course.

#### **B. Parenteral Conscious Sedation**

1. To administer parenteral conscious sedation, the dentist must satisfy one of the following criteria:

a. Completion of a comprehensive training program in parenteral conscious sedation that satisfies the requirements described in Part III of the ADA Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry at the time training was commenced.<sup>2</sup>

b. Completion of an ADA accredited post-doctoral training program (e.g., general practice residency), which affords comprehensive and appropriate training necessary to administer and manage parenteral conscious sedation.

c. This should not exclude individuals who would be grandfathered by individual state laws.

2. The following guidelines shall apply to the administration of parenteral conscious sedation in the dental office:

a. Administration of parenteral conscious sedation by another duly qualified dentist or physician requires the operating dentist and his/her clinical staff to maintain current expertise in Basic Life Support (BLS).

b. When a Certified Registered Nurse Anesthetist (CRNA) is permitted to function under the supervision of a dentist, administration of parenteral conscious sedation by a CRNA shall require the operating dentist to have completed training in parenteral conscious sedation commensurate with these guidelines.

c. A dentist administering parenteral conscious sedation must document current, successful completion of a Basic Life Support (BLS) course. Advanced Cardiac Life Support (ACLS) or an appropriate equivalent is encouraged.

<sup>2</sup> Prior to July 1, 1993, the ADA Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry required only 40 hours of a comprehensive course in parenteral conscious sedation. Since July 1, 1993, the requirement has been increased to 60 hours in addition to laboratory experience and supervised management of 20 patients.

### C. Deep Sedation/General Anesthesia

1. To administer deep sedation/general anesthesia, the dentist must satisfy one of the following criteria:

a. Completion of an advanced training program in anesthesia and related subjects beyond the undergraduate dental curriculum that satisfies the requirements described in Part II of the ADA Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry at the time training was commenced.<sup>3</sup>

b. Completion of an ADA accredited post-doctoral training program (e.g., oral and maxillofacial surgery), which affords comprehensive and appropriate training necessary to administer and manage deep sedation/general anesthesia, commensurate with these guidelines.

c. This should not exclude individuals who would be grandfathered by individual state laws.

2. The following guidelines shall apply to the administration of deep sedation/general anesthesia in the dental office:

a. Administration of deep sedation/general anesthesia by another duly qualified dentist or physician requires the operating dentist and his/her clinical staff to maintain current expertise in Basic Life Support (BLS).

b. When a Certified Registered Nurse Anesthetist (CRNA) is permitted to function under the supervision of a dentist, administration of deep sedation/general anesthesia by a CRNA shall require the operating dentist to have completed training in deep sedation/general anesthesia commensurate with these guidelines.

c. A dentist administering deep sedation/general anesthesia must document current, successful completion of an Advanced Cardiac Life Support (ACLS) course (or an appropriate equivalent).

### V. Clinical Guidelines

#### A. Enteral and/or Combination Inhalation-Enteral Conscious Sedation (Combined Conscious Sedation)

##### 1. Patient Evaluation

Patients subjected to enteral and/or combination inhalation-ental conscious sedation (combined conscious sedation) must be suitably evaluated prior to the start of any sedative procedure. In healthy or medically stable individuals (ASA I, II) this may be simply a review of their current medical history and medication use. However, with individuals who may not be medically stable or who have a significant health disability (ASA III, IV) consultation with their primary care physician or consulting medical specialist regarding potential procedure risk may be desirable.

##### 2. Pre-Operative Preparation

•The patient and/or guardian must be advised regarding the procedure associated with the delivery of any sedative agents and the appropriate informed consent should be obtained.

<sup>3</sup> Prior to July 1, 1993, the prescribed length of training described in the ADA Guidelines for Teaching the Comprehensive Control of Anxiety and Pain in Dentistry was of one year's duration. As of July 1, 1993, the prescribed length was extended to two years.



- Inhalation equipment used in conjunction with enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) must be evaluated for proper operation and delivery of inhalation agents prior to use on each patient.

- Where enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation) is utilized, determination of adequate oxygen supply must be completed prior to use with each patient.

- Baseline vital signs should be obtained unless the patient's behavior prohibits such determination.

- Pretreatment physical evaluation must be performed as deemed appropriate.

- Specific dietary instructions must be delineated based on the technique used and patient's physical status.

- Appropriate verbal or written instructions must be given to the patient and/or guardian.

### 3. Personnel and Equipment Requirements

#### Personnel:

- During administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation), at least one additional person should be present in addition to the dentist. This may be the chairside dental assistant.

#### Equipment:

- When inhalation equipment is used, it must have a fail-safe system that is appropriately checked and calibrated.

- If nitrous oxide and oxygen delivery equipment capable of delivering less than 25% oxygen is used, an in-line oxygen analyzer must be used.

- The equipment must have an appropriate scavenging system.

### 4. Monitoring and Documentation

#### Monitoring:

- Direct clinical observation of patient during administration must occur.

#### Oxygenation:

- Color of mucosa, skin or blood should be continually evaluated.

- Oxygen saturation must be evaluated continuously by pulse oximetry.

#### Ventilation:

- Must observe chest excursions.

- Should auscultate breath sounds or monitor end-tidal CO<sub>2</sub>.

#### Circulation:

- Should continually evaluate blood pressure and heart rate (unless the patient is unable to tolerate such monitoring).

#### Documentation:

- Appropriate time-oriented anesthetic record must be maintained.
- Should document individuals present during the administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation).

#### 5. Recovery and Discharge

- Oxygen and suction equipment must be immediately available in the recovery area and/or operatory.
- Continual monitoring of oxygenation, ventilation and circulation when the anesthetic is no longer being administered; patient must have continuous supervision until oxygenation, ventilation and circulation are stable and the patient is appropriately responsive for discharge from the facility.
- Must determine and document that oxygenation, ventilation and circulation are stable prior to discharge.
- Must provide explanation and documentation of postoperative instructions to the patient and/or a responsible adult at the time of discharge.
- The dentist must determine that the patient has met discharge criteria prior to leaving the office.

#### 6. Special Situations

In selected circumstances, ventilatory and other monitoring may not be possible due to patient non-compliance and the failure of the sedative procedure.

#### 7. Emergency Management

The anesthesia permit holder/provider is responsible for the anesthetic management, adequacy of the facility, and treatment of emergencies associated with the administration of enteral and/or combination inhalation-enteral conscious sedation (combined conscious sedation), including immediate access to pharmacologic antagonists, if any, and appropriately sized equipment for establishing a patent airway and providing positive pressure ventilation with oxygen.

### B. Parenteral Conscious Sedation

#### 1. Patient Evaluation

Patients subjected to parenteral conscious sedation must be suitably evaluated prior to the start of any sedative procedure. In healthy or medically stable individuals (ASA I, II) this may be simply a review of their current medical history and medication use. However, with individuals who may not be medically stable or who have a significant health disability (ASA III, IV) consultation with their primary care physician or consulting medical specialist regarding potential procedure risk or special monitoring requirements may be desirable.

## 2. Pre-operative Preparation

- The patient and/or guardian must be advised regarding the procedure associated with the delivery of any sedative agents and the appropriate informed consent should be obtained.
- If inhalation equipment is used in conjunction with parenteral conscious sedation, the equipment must be evaluated for proper operation and delivery of inhalation agents prior to use on each patient.
- Determination of adequate oxygen supply must be completed prior to use with each patient.
- Baseline vital signs should be obtained unless the patient's behavior prohibits such determination.
- Pretreatment physical evaluation must be performed as deemed appropriate.
- Specific dietary restrictions must be delineated based on the technique used and patient's physical status.
- Appropriate verbal or written instructions must be given to the patient and/or guardian.
- An intravenous line, which is secured throughout the sedation procedure, must be established (see exceptions: special situations).

## 3. Personnel Requirements and Equipment

### Personnel:

- During administration of parenteral conscious sedation, the dentist and at least one other individual who is currently competent in Basic Life Support (BLS), or its equivalent, must be present.

### Equipment (if appropriate for procedure):

- Must have a fail-safe system that is appropriately checked and calibrated.
- If nitrous oxide and oxygen delivery equipment capable of delivering less than 25% oxygen is used, an in-line oxygen analyzer must be used.
- The equipment must have an appropriate scavenging system.
- Regardless of procedure, a positive pressure oxygen system suitable for patients being treated must be available.

## 4. Monitoring and Documentation

### Monitoring:

- Direct clinical observation of patient during administration must occur.

### Oxygenation:

- Color of mucosa, skin or blood should be continually evaluated.
- Oxygen saturation must be evaluated continuously by pulse oximetry.



#### Ventilation:

- Must observe chest excursions.
- Should auscultate breath sounds or monitor end-tidal CO<sub>2</sub>.

#### Circulation:

- Should continually evaluate blood pressure and heart rate (unless the patient is unable to tolerate).
- Continuous EKG monitoring of patients with significant cardiovascular disease must be accomplished.

#### Documentation:

- Appropriate time-oriented anesthetic record must be maintained.
- Should document individuals present during the administration of parenteral conscious sedation.

### 5. Recovery and Discharge

- Oxygen and suction equipment must be immediately available in the recovery area and/or operatory.
- Continual monitoring of oxygenation, ventilation and circulation when the anesthetic is no longer being administered; patient must have continuous supervision until oxygenation, ventilation and circulation are stable and the patient is appropriately responsive for discharge from the facility.
- Must determine and document that oxygenation, ventilation and circulation are stable prior to discharge.
- Must provide explanation and documentation of postoperative instructions to the patient and/or a responsible adult at the time of discharge.
- The dentist must determine that the patient has met discharge criteria prior to leaving the office.

### 6. Special Situations (to include multiple/combo techniques and types of special patients)

In selected circumstances, parenteral conscious sedation may be utilized without establishing an indwelling intravenous line. These circumstances include sedation for very brief procedures; young children managed entirely by non-intravenous techniques; or the establishment of intravenous access after sedation has been induced due to poor patient cooperation.

### 7. Emergency Management

The anesthesia permit holder/provider is responsible for the anesthetic management, adequacy of the facility, and treatment of emergencies associated with the administration of parenteral conscious sedation, including immediate access to pharmacologic antagonists, if any, and appropriately sized equipment for establishing a patent airway and providing positive pressure ventilation with oxygen.

## C. Deep Sedation/General Anesthesia

### 1. Patient Evaluation

Patients subjected to deep sedation/general anesthesia must be suitably evaluated prior to the start of any sedative/anesthetic procedure. In healthy or medically stable individuals (ASA I, II) this may be simply a review of their current medical history and medication use. However, with individuals who may not be medically stable or who have a significant health disability (ASA III, IV) consultation with their primary care physician or consulting medical specialist regarding potential procedure risk should be considered.

### 2. Pre-operative Preparation

- The patient and/or guardian must be advised regarding the procedure associated with the delivery of any sedative agents and the appropriate informed consent should be obtained.
- If inhalation equipment is used in conjunction with deep sedation/general anesthesia, the equipment must be evaluated for proper operation and delivery of inhalation agents prior to use on each patient.
- Determination of adequate oxygen supply must be completed prior to use with each patient.
- Baseline vital signs should be obtained unless the patient's behavior prohibits such determination.
- Pretreatment physical evaluation must be performed as deemed appropriate.
- Specific dietary restrictions must be delineated based on the technique used and patient's physical status.
- Appropriate verbal or written instructions must be given to the patient and/or guardian.
- An intravenous line, which is secured throughout the procedure, must be established (see exceptions: special situations).

### 3. Personnel and Equipment Requirement

Personnel: A minimum of three (3) individuals must be present.

- A dentist qualified in accordance with Part IV, Section C of this document to administer the deep sedation/general anesthesia shall be designated to be in charge of the administration of the anesthesia care.
- Two individuals who are currently competent in Basic Life Support (BLS), or its equivalent, one of whom is trained in patient monitoring.
- When the same individual administering the deep sedation/general anesthesia is performing the dental procedure, there must be a second individual trained in patient monitoring, who is currently competent in Basic Life Support (BLS) or its equivalent.

Equipment:

- Equipment suitable to provide advanced airway management and advanced life support should be on premises and available for use.
- With intubated patients, in-line oxygen analyzers should be used.

#### 4. Monitoring and Documentation

##### Monitoring:

- Direct clinical observation of patient during administration must occur.

##### Oxygenation:

- Color of mucosa, skin or blood should be continually evaluated.
- Oxygenation saturation must be evaluated continuously by pulse oximetry.

##### Ventilation:

- Intubated patient: Must monitor end-tidal CO<sub>2</sub>
- Non-intubated patient: Should auscultate breath sounds or monitor end-tidal CO<sub>2</sub>

##### Circulation:

- Continuous EKG monitoring of all patients throughout the procedure with electrocardioscopy must occur.
- Must take and record blood pressure and pulse continually at least every five (5) minutes.

##### Temperature:

- A device capable of measuring body temperature should be readily available during the administration of deep sedation/general anesthesia.
- When agents implicated in precipitating malignant hyperthermia are utilized, continuous monitoring of body temperature must be performed.

##### Documentation:

- Appropriate time-oriented anesthetic record must be maintained.
- Should document individuals present during the administration of deep sedation/general anesthesia.

#### 5. Recovery and Discharge

- Oxygen and suction equipment must be immediately available in the recovery area and/or operator.
- Continual monitoring of oxygenation, ventilation, circulation and temperature, as indicated, when the anesthetic is no longer being administered; patient must have continuous supervision until oxygenation, ventilation, circulation and temperature, as indicated, are stable and the patient is appropriately responsive for discharge from the facility.
- Must determine and document that oxygenation, ventilation, circulation and temperature, as indicated, are stable prior to discharge.
- Must provide explanation and documentation of postoperative instructions to the patient and/or a responsible adult at the time of discharge.
- The dentist must determine that the patient has met discharge criteria prior to leaving the office.

#### 6. Special Situations (to include multiple/combo techniques and types of special patients).

In selected circumstances, deep sedation/general anesthesia may be utilized without first establishing an indwelling intravenous line. These circumstances include deep sedation/general anesthesia for very brief procedures; or brief periods of time, which, for example, may occur in some pediatric patients; or the establishment of intravenous access after deep sedation/general anesthesia has been induced due to poor patient cooperation.

Due to the fact that many dental patients undergoing deep sedation/general anesthesia are mentally and/or physically challenged, it is not always possible to have a comprehensive physical examination or appropriate laboratory tests prior to administering care. When these situations occur, the dentist responsible for administering the deep sedation/general anesthesia should document the reasons preventing the recommended preoperative management.

#### 7. Emergency Management

- The anesthesia permit holder/provider is responsible for the anesthetic management, adequacy of the facility, and treatment of emergencies associated with the administration of deep sedation and general anesthesia, including immediate access to pharmacologic antagonists and appropriately sized equipment for establishing a patent airway and providing positive pressure ventilation with oxygen.
- Advanced airway equipment, resuscitation medications and a defibrillator must also be immediately available.
- Appropriate pharmacologic agents must be immediately available if known triggering agents of malignant hyperthermia are part of the anesthesia plan.

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